Installing Ethernet Link Modules in BN Platforms

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Bay Networks

Bay Networks

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Meets requirements of:

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Canada Requirements Only

Canada CS-03 -- Rules and Regulations

Note: The Canadian Department of Communications label identifies certified equipment. The certification means that the equipment meets certain telecommunications network protective operations and safety requirements. The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the company's inside wiring associated with a single line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above conditions may not prevent the degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

Caution: Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

Canada CS-03 -- Règles et règlements

Note: L’étiquette du ministère des Communications du Canada indique que l’appareillage est certifié, c’est-à-dire qu’il respecte certaines exigences de sécurité et de fonctionnement visant les réseaux de télécommunications. Le ministère ne garantit pas que l’appareillage fonctionnera à la satisfaction de l’utilisateur.

Avant d’installer l’appareillage, s’assurer qu’il peut être branché aux installations du service de télécommunications local. L’appareillage doit aussi être raccordé selon des méthodes acceptées. Dans certains cas, le câblage interne du service de télécommunications utilisé pour une ligne individuelle peut être allongé au moyen d’un connecteur certifié (prolongateur téléphonique). Le client doit toutefois prendre note qu’une telle installation n’assure pas un service parfait en tout temps.

Les réparations de l’appareillage certifié devraient être confiées à un service d’entretien canadien désigné par le fournisseur. En cas de réparation ou de modification effectuées par l’utilisateur ou de mauvais fonctionnement de l’appareillage, le service de télécommunications peut demander le débranchment de l’appareillage.

Pour leur propre sécurité, les utilisateurs devraient s’assurer que les mises à la terre des lignes de distribution d’électricité, des lignes téléphoniques et de la tuyauterie métallique interne sont raccordées ensemble. Cette mesure de sécurité est particulièrement importante en milieu rural.

Attention: Les utilisateurs ne doivent pas procéder à ces raccordements eux-mêmes mais doivent plutôt faire appel aux pouvoirs de réglementation en cause ou à un électricien, selon le cas.

Canada Requirements Only *(continued)*

D. O. C. Explanatory Notes: Equipment Attachment Limitations

The Canadian Department of Communications label identifies certified equipment. This certification meets certain telecommunication network protective, operational and safety requirements. The department does not guarantee the equipment will operate to the users satisfaction.

Before installing the equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the company's inside wiring associated with a single line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above condition may not prevent degradation of service in some situations.

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Caution: Users should not attempt to make such connections themselves, but should contact the appropriate electrical inspection authority, or electrician, as appropriate.

Notes explicatives du ministère des Communications: limites visant les accessoires

L'étiquette du ministère des Communications du Canada indique que l'appareillage est certifié, c'est-à-dire qu'il respecte certaines exigences de sécurité et de fonctionnement visant les réseaux de télécommunications. Le ministère ne garantit pas que l'appareillage fonctionnera à la satisfaction de l'utilisateur.

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Attention: Les utilisateurs ne doivent pas procéder à ces raccordements eux-mêmes mais doivent plutôt faire appel aux pouvoirs de réglementation en cause ou à un électricien, selon le cas.

Canada Requirements Only *(continued)*

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Réglement sur le brouillage radioélectrique du ministère des Communications

Cet appareil numérique (Access Feeder Node, Access Link Node, Access Node, Access Stack Node, Backbone Concentrator Node, Backbone Concentrator Node Switch, Backbone Link Node, Backbone Link Node Switch, Concentrator Node, Feeder Node, Link Node) respecte les limites de bruits radioélectriques visant les appareils numériques de classe A prescrites dans le Réglement sur le brouillage radioélectrique du ministère des Communications du Canada.

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About This Guide

Read this guide if you are responsible for installing a Bay Networks™ Dual or Quad Ethernet, Dual Ethernet High-Speed Filters, or Dual 100Base-T Ethernet link module in these Backbone Node (BN®) platforms:

- Backbone Link Node (BLN®)
- Backbone Link Node-2 (BLN-2)
- Backbone Concentrator Node (BCN®)

This guide describes how to

- Prepare for installation
- Install the link module
- Interpret the LEDs on the link module

Note: Experienced network operators can safely perform the user-serviceable procedures described in this book; however, only authorized Bay Networks service technicians can perform other maintenance procedures not described in this book.

Conventions

bold text	Indicates text that you need to enter and command names in text. Example: Use the **dinfo** command.
italic text	Indicates variable values in command syntax descriptions, new terms, file and directory names, and book titles.
quotation marks (“ ”)	Indicate the title of a chapter or section within a book.

Acronyms

ILI	Intelligent Link Interface
LED	light-emitting diode

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Europe	(33) 92-968-300	(33) 92-968-301
Asia/Pacific Region	(612) 9927-8800	(612) 9927-8811
Latin America	(407) 997-1713	(407) 997-1714

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Bay Networks Information Services provide up-to-date support information as a first-line resource for network administration, expansion, and maintenance. This information is available from a variety of sources.

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A special benefit for contracted customers and resellers is the ability to access the Web Server to perform Case Management. This feature enables your support staff to interact directly with the network experts in our worldwide Technical Response Centers. A registered contact with a valid Site ID can

- View a listing of support cases and determine the current status of any open case. Case history data includes severity designation, and telephone, e-mail, or other logs associated with the case.
- Customize the listing of cases according to a variety of criteria, including date, severity, status, and case ID.
- Log notes to existing open cases.
- Create new cases for rapid, efficient handling of noncritical network situations.
- Communicate directly via e-mail with the specific technical resources assigned to your case.

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This CD-ROM -- sent quarterly to all contracted customers -- is a complete Bay Networks Service troubleshooting knowledge database with an intelligent text search engine.

The Support Source CD contains extracts from our problem-tracking database; information from the Bay Networks Forum on CompuServe; comprehensive technical documentation, such as Customer Support Bulletins, Release Notes, software patches and fixes; and complete information on all Bay Networks Service programs.

You can run a single version on Macintosh Windows 3.1, Windows 95, Windows NT, DOS, or UNIX computing platforms. A Web links feature enables you to go directly from the CD to various Bay Networks Web pages.

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For assistance with noncritical network support issues, Bay Networks Information Services maintain an active forum on CompuServe, a global bulletin-board system. This forum provides file services, technology conferences, and a message section to get assistance from other users.

The message section is monitored by Bay Networks engineers, who provide assistance wherever possible. Customers and resellers holding Bay Networks service contracts also have access to special libraries for advanced levels of support documentation and software. To take advantage of CompuServe's recently enhanced menu options, the Bay Networks Forum has been re-engineered to allow links to our Web sites and FTP sites.

We recommend the use of CompuServe Information Manager software to access these Bay Networks Information Services resources. To open an account and receive a local dial-up number in the United States, call CompuServe at 1-800-524-3388. Outside the United States, call 1-614-529-1349, or your nearest CompuServe office. Ask for Representative No. 591. When you are on line with your CompuServe account, you can reach us with the command **GO BAYNET**.

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InfoFACTS is the Bay Networks free 24-hour fax-on-demand service. This automated system has libraries of technical and product documents designed to help you manage and troubleshoot your Bay Networks products. The system responds to a fax from the caller or to a third party within minutes of being accessed.

To use InfoFACTS in the United States or Canada, call toll-free 1-800-786-3228. Outside North America, toll calls can be made to 1-408-764-1002. In Europe, toll-free numbers are also available for contacting both InfoFACTS and CompuServe. Please check our Web page for the listing in your country.

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Technical Response Center	Telephone Number	Fax Number
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Sydney, Australia	(612) 9927-8800	(612) 9927-8811
Tokyo, Japan	(81) 3-5402-0180	(81) 3-5402-0173

Chapter 1
Preparing for Installation

Note: In this guide, the term Ethernet includes 100Base-T Ethernet and Dual Ethernet High-Speed Filters link modules, unless referring to a specific model.

Depending on your configuration, complete these preliminary tasks as needed to install the link module:

- Choose a slot
- Remove a link module

Note: There are no *user-configurable* jumpers on Ethernet link modules. Changing a jumper on any of these link modules can jeopardize module functioning.

Choosing a Slot

You can install the Ethernet link module in

- Slots 2 through 5 in the BLN platform (Figure 1-1)
- Slots 2 through 5 in the BLN-2 platform (Figure 1-2)
- Slots 1 through 6 and Slots 8 through 14 in the BCN platform (Figure 1-3)

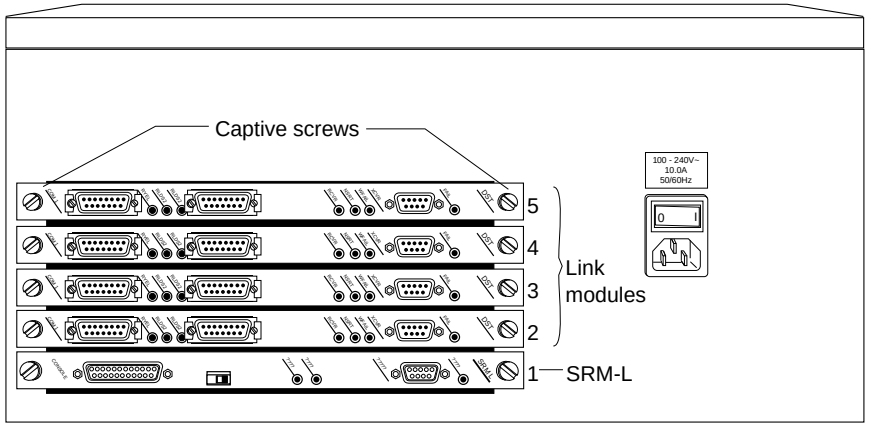

Figure 1-1. Link Module Slots in a BLN Platform

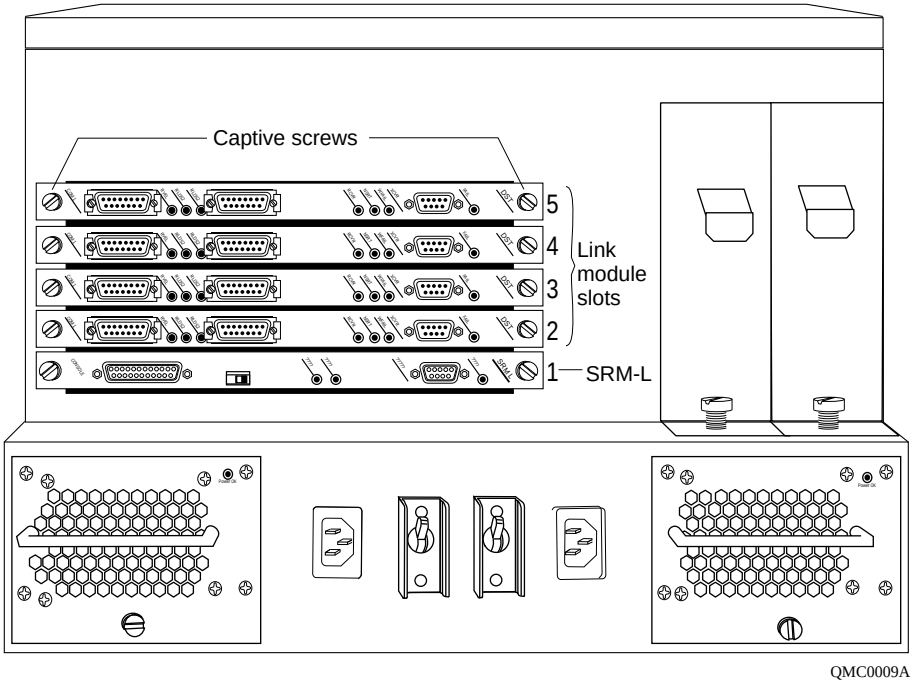

Figure 1-2. Link Module Slots in a BLN-2 Platform

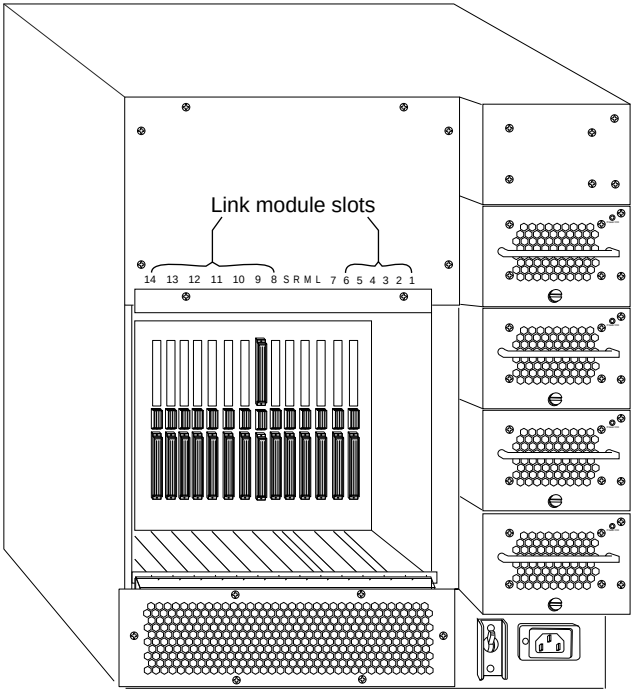

Figure 1-3. Link Module Slots in a BCN Platform

Removing a Link Module

If there are no empty slots in your BN platform, you must remove a link module to install the Ethernet link module. When replacing a configured link module, you must delete all configured circuits (ports) from the slot so the BN platform software can properly configure the new link module.

Refer to *Configuring Routers* if you use router software or *Administration Guide* if you use BayStream software for instructions on editing a configuration file and deleting circuits.

The Backbone Node hot-swap feature allows you to remove or replace a link module with the chassis power on or off.

Danger: Do not remove more than two adjacent modules with the power on.

When you remove a link module with the power on, the services that slot provides become disrupted. After the slot fails to receive packets, the other link modules in the chassis resynchronize their routing tables and continue uninterrupted.

The procedure for removing a link module is the same for the BLN, BLN-2, and BCN platforms:

1. **Disconnect any exterior cables from the link module.**
2. **Attach an antistatic wrist strap.**

   BN platforms and link modules ship with an antistatic wrist strap. You must wear one of these straps when accessing components on BN platforms. The antistatic wrist strap directs the discharge of static electricity from your body to the chassis, thereby avoiding discharge and possible damage to sensitive electronic components.

Caution: Electrostatic discharge can damage hardware. Always use the antistatic wrist strap when handling any component on your BN platform.

3. **Loosen the captive screw on each end of the module.**
4. **Grasp the sides of the module and pull it out of the slot.**
5. **Place the module in an antistatic protective bag.**

Chapter 2
Installing the Link Module

Complete the steps in this chapter to install the Ethernet link module in your BLN, BLN-2, or BCN platform.

Inserting the Link Module

Install the link module in the BLN, BLN-2, or BCN as follows:

1. **Attach an antistatic wrist strap.**

   BN platforms and link modules ship with an antistatic wrist strap. You must wear one of these straps whenever you access components in a BN platform.

   The antistatic wrist strap directs the discharge of static electricity from your body to the chassis, thereby avoiding discharge and possible damage to sensitive electronic components.

Caution: Electrostatic discharge can damage hardware. Always use the antistatic wrist strap when handling any router components.

2. **Slide the module into the appropriate slot, using the slot card guides.**

   Refer to Figure 1-1 (BLN), 1-2 (BLN-2), or 1-3 (BCN) in Chapter 1 for slot locations.

3. **Insert the module until its connector panel touches the router back panel.**

4. **Secure the captive screw on each end of the module (Figure 2-1).**

   Figure 2-1 shows the captive screws on a dual Ethernet link module; these screws are the same on all link modules.

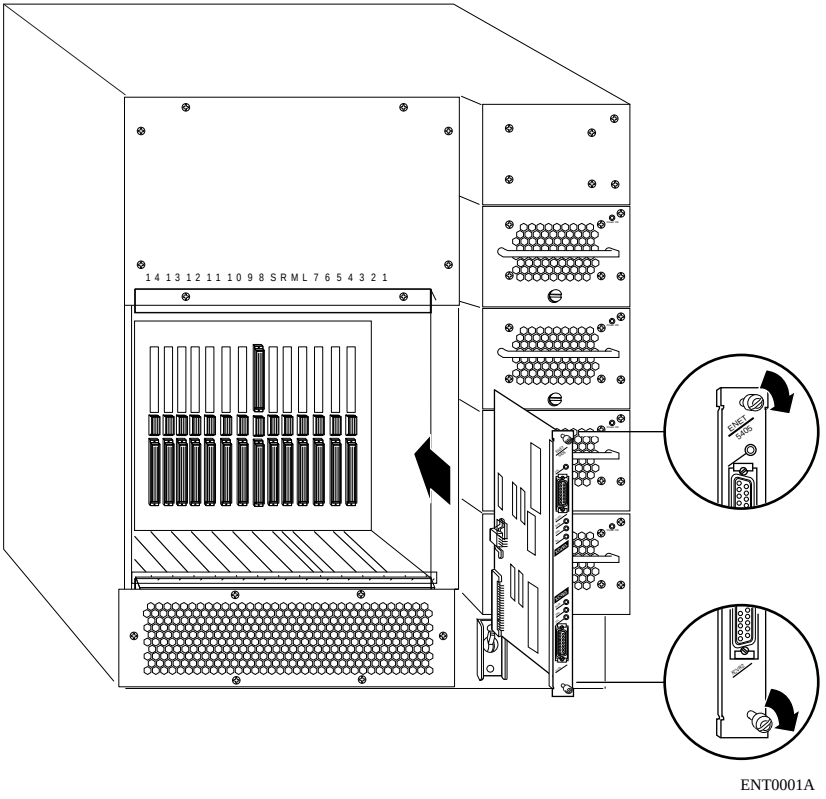

Figure 2-1. Link Module Captive Screws (BCN Example)

5. **Once you are done accessing the interior of the chassis, remove the antistatic wrist strap.**

Connecting Cables

Connect the appropriate cabling to the link module ports.

Refer to the cable guide for information about the cables Bay Networks supports for link modules.

Chapter 3
Checking Status Indicators

This chapter describes the status indicator lights (LEDs) on the Ethernet link modules. Use the LEDs to verify that the link module is operating after installation.

Note: We recommend that you issue the **diags** command to the associated slot, using the Bay Networks Technician Interface, immediately after you insert a link module. (Refer to *Using Technician Interface Software* if you use router software or *Troubleshooting and Testing* if you use BayStream software.) Otherwise, the link module FAIL LED will remain lit, indicating that diagnostics have not run on the Intelligent Link Interface (ILI). However, even if you do not issue the **diags** command, the link module initializes and becomes operational as long as the board functions properly and contains the correct interface configurations.

Ethernet LEDs

The LEDs on the Ethernet connector panels vary depending on which module you have. Figure 3-1 shows the LEDs on the Dual Ethernet, Quad Ethernet, and Dual Ethernet High-Speed Filters link modules. Table 3-1 describes those LED functions. For information on the Dual 100Base-T Ethernet link module LEDs, see the next section.

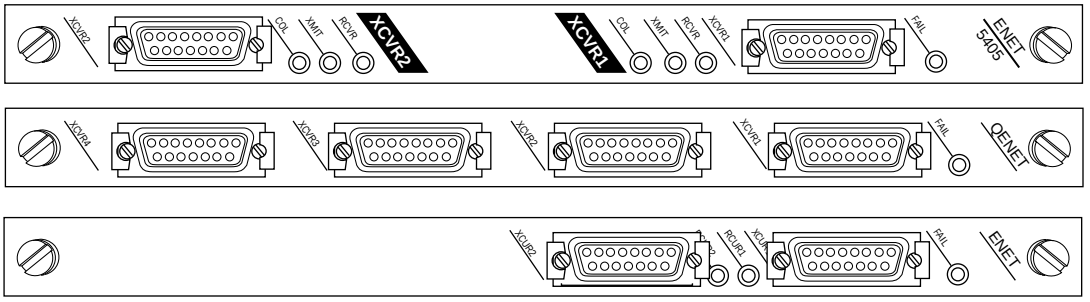

Figure 3-1. Ethernet LEDs

Table 3-1. Functions of the Ethernet LEDs

LED	Function
COL	Indicates a collision detection.
RCVR, RCVR1 or RCVR2	Indicates that the respective port is receiving data.
XCVR1 or XCVR2	Indicates the presence of Ethernet traffic (either transmitting or receiving) on the respective port.
XMT	Indicates that the respective port is transmitting data.
FAIL	Indicates one of the following: • Diagnostic testing is in progress. Diagnostic testing occurs when you cold-start the module. You cold-start the module when you cycle power, issue the **diags** command from the Technician Interface, or hot-swap the link module. This LED blinks three times and goes out when the diagnostic testing terminates successfully. • Power-up diagnostic testing failed and the link module is waiting for an automatic attempt to reinitiate diagnostic testing. If the FAIL LED turns on again, call the Bay Networks Technical Response Center. • A link module hardware problem exists and the link module is waiting for an automatic attempt to reinitiate diagnostic testing. If the FAIL LED turns on again, call the Bay Networks Technical Response Center.

Dual 100Base-T Ethernet Link Module LEDs

Figure 3-2 shows the LEDs on the Dual 100Base-T Ethernet link module, and Table 3-2 describes those LED functions.

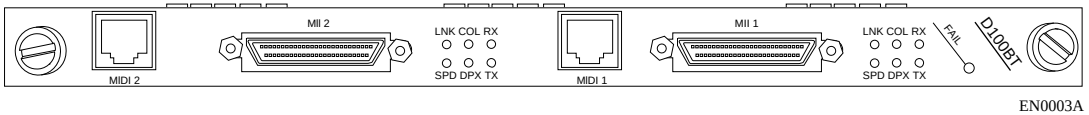

Figure 3-2. Dual 100Base-T Ethernet LEDs

Table 3-2. Functions of the Dual 100Base-T Ethernet LEDs

LED	Function
COL	Indicates that the port has either detected an Ethernet wire collision in Simplex mode, or is transmit-congested in Duplex mode.
LNK	Indicates that the port has established a valid link with another node or repeater in 10-MB mode.
TX and RX	Indicate when the port is transmitting and receiving data.
SPD	Remains lit when the port is in 100-MB mode. The SPD LED does not light when the port is in 10-MB mode.
DPX	Indicates that the port is in Duplex mode and is sending and receiving.
FAIL	Lights during powerup, and may flash during diagnostic testing. This LED turns off after the diagnostics complete successfully and the BN platform boots. It remains lit if the link module or any connector on the link module fails diagnostics. In this case, the DIAG LED on the BN front panel will also be on, and you should contact the Bay Networks Technical Response Center.